

REMARKS/ARGUMENTS

The Office Action mailed September 19, 2005 has been reviewed and carefully considered. Claims 1, 5, 8-11, 15, 18-24, 27, 31, 34-36, 38, 41-42, 46, 49-50, and 55-62 are pending in this application, with claims 1, 5, 11, and 15 being the only independent claims. Reconsideration of the above-identified application, as herein amended and in view of the following remarks, is respectfully requested.

Claim Amendments

Independent claims 1 and 5 have been amended to recite “altering, at a receiver, a threshold condition for transmitting the acknowledgement message”. Independent claims 11 and 15 are similarly amended to recite “said controller arranged and dimensioned for altering, at the receiving end of said transmission channel, a threshold condition for transmitting an acknowledgement message”. The amendments clarify that the threshold condition at a receiver is altered when a negatively acknowledged data unit is retransmitted or upon detection of data unit erasure or loss. Support for these amendments is found at page 17, line 27 to page 18, line 15; and page 11, lines 28-32.

Dependent claims 8, 18, 22, 36, and 41 are amended to recite that the altering of the threshold condition for sending acknowledgement messages includes “increasing the count value by said predetermined value” to clarify that the step of increasing is not an alternative limitation for these dependent claims.

New claims 55-62 are added to separately recite “increasing the count value by a predetermined value” and “decreasing said predetermined threshold value” in non-alternative language.

Objection of Claims

Claims 8, 18, 22, 36, and 41 are objected to because it is unclear increasing the count by the predetermined value is an alternative limitation. Claims 8, 18, 22, 36, and 41 are each amended to recite that the step of increasing the count by the predetermined value is not an alternative limitation for these dependent claims.

Rejection of Claims under 35 U.S.C. §103

Claims 1, 5, 8, 9, 22, 24, 27, and 42 stand rejected under 35 U.S.C. §103 as unpatentable over Stevens, TCP/IP Illustrated, Vol. 1 in view of U.S. Patent No. 4,970,714 (Chen '714) and U.S. Patent No. 5,751,719 (Chen '719).

Claims 11, 15, 18-20, 36, 38, and 41 stand rejected under 35 U.S.C. §103 as unpatentable over Chen '714 in view of Chen '719.

Independent claims 1 and 5 now recite "altering, at the receiver, a threshold condition for transmitting the acknowledgement message including one of increasing the count value by a predetermined value and decreasing said predetermined threshold value" when data loss has been detected. Independent claims 11 and 15 recite "altering, at the receiving end of said transmission channel, a threshold condition for transmitting an acknowledgement message".

Independent claims 1, 5, 11, and 15 are allowable over the prior art of record because neither Stevens, Chen '714, nor Chen '719, nor the combined teachings thereof, disclose altering, at the receiver or at the receiving end of the transmission channel, a threshold condition for transmitting the acknowledgement message.

The Examiner acknowledges that Stevens fails to teach or suggest one of increasing the count value and decreasing the threshold value.

Chen '714 discloses an adaptive data link protocol. According to Chen '714, a data transmission system 20 allows users 22, 24 to communicate with each other (col. 4, lines 63-65 of Chen '714). The system 20 includes two terminals 26, 28 connected by a duplex link 30 (col. 4, lines 65-67). Terminal 26 includes a memory 32, a transmitter 34, a receiver 36, a control logic unit 38, and an interface 40 (col. 5, lines 15-17). Similarly, terminal 28 includes a memory 42, a transmitter 44, a receiver 46, a logic unit 48, and an interface 50 (col. 5, lines 17-19).

When sending information from user 22 to user 24, data is first stored in memory 32 (col. 5, lines 31-33). The data in memory 32 is arranged in frames which form a window of data which may be divided into sub-windows (col. 5, lines 33-39). The transmission of a sub-window is preceded by a header identifying the number of frames and control signals are embedded to identify each of the frames to the receiver (col. 5, lines 50-58). The memory 32 of sender 22 retains storage until an acknowledgement is received from the receiver (col. 6, lines 6-11). The window of memory 32 is divided into sub-windows with reduced numbers of frames than the window to increase the frequency of acknowledgement signals (col. 6, lines 60-65). The changing of the sub-window size may be accomplished automatically.

Since Chen '714 discloses that the size of the sub-window is changed at the sender terminal 26, Chen '714 fails to disclose, teach or suggest "altering, at the receiver, a threshold condition for transmitting the acknowledgement message", as now expressly recited in independent claims 1, 5, 11, and 15.

Chen '719 fails to disclose, teach, or suggest what Chen '714 and Stevens lack. Chen '719 discloses a method and system for data transfer in the presence of disconnects. More specifically, Chen '719 discloses a protocol that controls transfer operations that avoid

retransmission of an entire data file when a disconnect occurs (see col. 3, lines 44-50). In response to a disconnect, a recovery module invokes SUSPENDED state processing components which continue to retain successfully received packets (col. 7, lines 21-40). Upon reception of a reconnect signal, WAKE-UP state processing components begin providing transmission of only those data packets that are not currently stored in the buffer (col. 7, lines 52-61).

Col. 9, line 51 to col. 10, line 25 of Chen '719 discloses a sliding window of transmission which slides forward as acknowledgements are received from the receiver. The transmitter terminal monitors the high end H and low end L values of the window (col. 11, lines 43-47). If these values do not indicate a disconnect, the transmitter checks for acknowledgements and sets the low end value L to the last acknowledged group of packets successfully received, thus sliding the window forward for continuous transmission (col. 11, line 55 to col. 12, line 5). A receiver monitors H and L values and received packets if the values do not indicate a disconnect. The receiver counts the packets successfully received in a buffer (col. 12, lines 63-65). The receiver sends an acknowledgement when the count reaches $W/2$ (col. 13, lines 1-15).

Accordingly, Chen '719 adjusts the transmission window size by adjusting the H and L values at the transmitter. However, Chen '719 fails to disclose that the value W is changed and therefore fails to teach or suggest "altering, at the receiver, a threshold condition for transmitting the acknowledgement message", as now expressly recited in independent claims 1, 5, 11 and 15.

The combined teachings of Chen '714 and Chen '719 yield a solution in which a retransmission unit size, i.e., transmission window size, can be reduced at the transmitter to optimize channel throughput for channels of different quality and in which a counter is used to

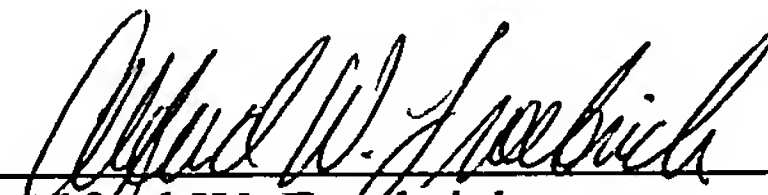
send an acknowledgement when the counter reaches a fixed threshold. Accordingly, the combined teachings of Chen '714 and Chen '719 fail to teach or suggest "altering, at the receiver, a threshold condition for transmitting the acknowledgement message", as now expressly recited in independent claims 1, 5, 11 and 15.

Dependent claims 8-10, 18-24, 27, 31, 34-36, 38, 41-42, 46, 49-50, and 55-62 each being dependent on one of independent claims 1, 5, 11, and 15, are deemed allowable for at least the same reasons expressed above with respect to independent claims 1, 5, 11, and 15, as well as for the additional limitations contained therein.

In view of the above remarks, the application is deemed to be in condition for allowance and notice to that effect is solicited.

Respectfully submitted,

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